

ABSTRACT OF THE INVENTION

A method and apparatus for controlling dopant concentration during borophosphosilicate glass film deposition on a semiconductor wafer to reduce consumption of nitride on the semiconductor wafer. In one embodiment of the invention, the method starts by placing a substrate having a nitride layer in a reaction chamber and providing a silicon source, an oxygen source and a boron source into the reaction chamber while delaying providing a phosphorous source into the reaction chamber to form a borosilicate glass layer over the nitride layer. The method continues by providing the silicon, oxygen, boron and phosphorous sources into the reaction chamber to form a borophosphosilicate film over the borosilicate glass layer.